

REMARKS

Applicants respectfully request entry of this Response and further consideration of this application. This Response cancels claims 4-6, 16, 17, 20 and 35-37. It amends claims 25 and 30 by incorporating the subject matter of claim 16 into each to place claims 25 and 30 into independent form. The remaining claim amendments simply ensure consistency with independent claims 25 and 30.

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Claims 7, 25, 26, 29-30, and 59 stand rejected under 35 U.S.C. § 103(a) as purportedly obvious based on Zheleva et al (Dislocation density reduction...) in view of Shakuda (US Patent 5,838,029), Mauk (US Patent 5,828,088), and further in view of Nam et al. (Growth of GaN and . . .). Claim 13 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Zheleva et al. in view of Shakuda, Mauk, and Nam et al., further in view of Tadatomo et al. (US 5,770,887). Claim 34 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Zheleva et al. in view of Shakuda, Mauk, and Nam et al., further in view of IBM (Abstract of "Method of Producing Gallium Nitride Boules for Processing into Substrates"). These grounds of rejection are respectfully traversed.

Claims 25 and 30 recite using a mask to form windows that are not disclosed by any of the applied art (Zhelva et al., Shakuda, Mauk, Nam et al., Tadatomo et al., and/or IBM). To ensure full understanding of claims 25 and 30, Applicants remind that claim 25 reads on their exemplary embodiment forming rectangular windows as shown in Fig. 14, and claim 30 reads on their embodiment forming hexagonal windows as shown in Fig. 15. None of the applied art discloses method steps resulting in (a) the recited shape of Applicants' open windows and (b) the recited alignment of Applicants' open windows, as set forth in claims 25 and 30. Applicants' methods according to claims 25 and 30 have particular advantages over the cited art, which advantages are discussed in connection with Applicants' sixth embodiment of the present

specification (page 38) and seventh embodiment of the present specification (page 42) respectively.

Applicants respectfully dispute that Nam et al. assist those of ordinary skill in the art to achieve their invention, whether or not asserted in combination with Zhelva et al., Shakuda, Mauk, Tadatomo et al., and IBM. Applicants noted that Nam et al. adopt a SiC substrate, and that the lattice constant of SiC approximates that of GaN forming the epitaxial layer. According to Applicants' understanding, lattice mismatch between the substrate and the epitaxial layer does not matter to Nam et al. On the other hand, Applicants' methods require a GaAs substrate. The lattice constant of GaAs differs significantly from that of GaN, and the lattice mismatch between the substrate and the epitaxial layer therefore has a strong bearing on the crystal quality. Hence, Applicants developed their present method of growing crystals using the mask layer steps set forth in their claims. For reference, the lattice constants of these materials are as follows:

GaN	3.19
GaAs	3.99 (25% more than GaN)
SiC	3.08 (3% less than GaN).

For at least the foregoing reasons, all of the above mentioned rejections asserted under 35 U.S.C. § 103(a) are overcome. Withdrawal of each is earnestly solicited, along with allowance of this application.

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Applicants respectfully submit that this Amendment and the above remarks obviate the outstanding issues in this case, thereby placing the application in condition for immediate allowance. Allowance of this application is earnestly solicited.


If any fees under 37 C.F.R. §§ 1.16 or 1.17 are due in connection with this filing, please charge the fees to Deposit Account No. 02-4300; Order No. 033035 M 0341.

If an extension of time under 37 C.F.R. §1.136 is necessary that is not accounted for herewith, such an extension is requested. The extension fee should be charged to Deposit Account No. 02-4300; Order No. 033035 M 0341.

Respectfully submitted,

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